-> Daten/Informationen

Eingegangen:
22. April 1983

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biologics

Hoechst Dyes 2495, 33258, 33342

Hoechst Dye 2495

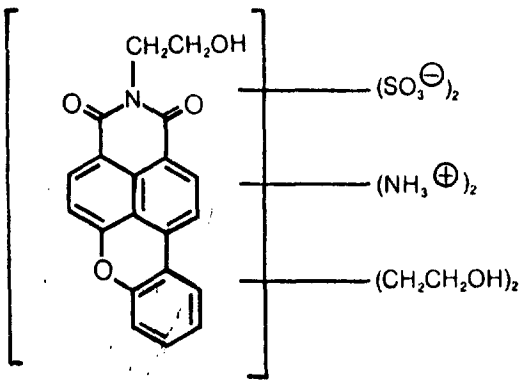
Biochemical Significance

Hoechst Dye No. 2495 has been used as fluorometric stain which provides a simple, versatile, method which is independent of external influences giving rise to a quantitative *in situ* ultra sensitive micro-scale method for determining protein.

Chemical Name

Benzoxanthene Gelb H2495 Fluorochrom;
HOE 2495-40/70;
Hoechst 2495

Structure



Empirical Formula

$C_{24}H_{29}N_3O_{12}S_2$

Molecular Weight

615.6

Solubility

Hoechst Dye No. 2495 is totally soluble in water at 0.2 grams per 10 ml affording a clear solution that is orange in color which upon dilution has a pH of 7.9

Purity

Hoechst Dye No. 2495 has a purity of greater than 99% by HPLC although it contains approximately 4.0% water by weight.

Ordering Information

Hoechst Dye 2495
Cat. No. 382057
•Sizes Available: 500 mg

Hoechst Dye No. 33258 (Bisbenzimide)

Biochemical Significance

Hoechst Dye No. 33258 is useful as a fluorescence stain for chromosomes. This staining property is attributed to the ability of bisbenzimide to bind with DNA structures. As can be seen from the attached list of references this compound is gaining increasing importance as a general tool for cytogenetic studies. Hoechst Dye No. 33258 may also be used to detect mycoplasma contamination in tissue cultures.

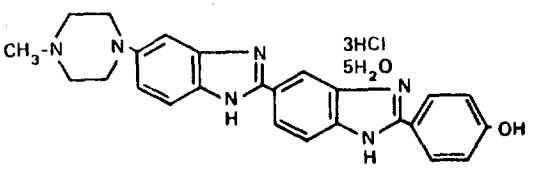
Chemical Name

[2-[2-(4-Hydroxyphenyl)-6-benzimidazolyl]-6-(1-methyl-4-piperazyl)benzimidazole, trihydrochloride, pentahydrate];
Phenol, 4[5-(4-methyl-1-piperazinyl) [2,5'-bi-1H-benzimadazoyl]-2'-yl], trihydrochloride, pentahydrate

Physical Properties

Appearance
Yellow powder.

Structure



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biologics

Hoechst Dyes

Empirical Formula
$C_{25}H_{37}N_6O_6$

Molecular Weight
624.0

Solubility
Hoechst Dye 33258 is totally soluble in water at 0.2 grams per 10 ml which upon dilution has a pH of 1.7. However, it has also been observed that this material will precipitate from phosphate buffer solutions.

Quantitative Determination
Dye concentrations can be determined by measuring the optical density of solutions to 0.1 M sodium chloride, 0.005 M HEPES buffer, pH 7.0. The molar extinction coefficient under these conditions is $4.2 \times 10^4\ M^{-1}\ cm^{-1}$ at 338 nm.

Handling

Stability
Light sensitive. Aqueous solutions are stable in solutions for up to two weeks at one milligram per milliliter if kept in the dark at 0-5 C.

Storage
Cool and dry protected from light (desiccated at +4 °C in the dark).

Toxicity

Dye is generally non-toxic to cells; the combination of dye plus light is also non-toxic to cells unless the cells have incorporated 5-bromodeoxyuridine.

Caution: Skin contact and mouth pipetting of this material should be discouraged due to its somewhat toxic nature. This material has been found to induce sister chromatid exchanges in cultured mammalian cells and thus must be suspected of having mutagen-carcinogen potential.

Ordering Information

Hoechst Dye 33258
(Bisbenzimide)
Cat. No. 282061
Sizes Available: 250 mg
1 gm

Hoechst Dye No. 33342 (Bisbenzimide)

Biochemical Significance

Hoechst Dye No. 33342 has been used by Preisler [*Cancer Treatment Reports*, **62**, 1393 (1978)] to study the interaction of the chemotherapeutic agent adriamycin with human cells due to the sensitive binding that occurs between the supravital dye and human leukemic cells. This dye also has been shown to reversibly bind to the DNA of Friend erythroleukemia cells and to interact with human hematopoietic cells.

Lalande, et al., (Proc. Natl. Acad. Sci., **78**, 363 (1981)) have recently developed a simple and rapid method for measuring membrane transport rates in mammalian cells and identifying cellular subpopulations that differ in their membrane transport rates via flow cytometric analysis of the uptake of the DNA sp. in the presence of the fluorescent probe Hoechst Dye No. 33342.

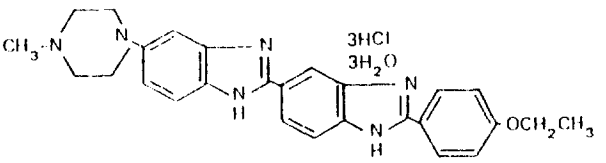
Chemical Name

2',5'-Bi-1H-benzimidazole, 2'-(4-ethoxyphenyl)-5-(4-methyl-1 piperazinyl), trihydrochloride, trihydrate

Physical Properties

Appearance
Yellow powder.

Chemical Structure



Empirical Formula
$C_{27}H_{37}N_6O_4Cl_3$

Molecular Weight
615.9

Solubility
Hoechst Dye 33342 is totally soluble in water at 0.2 grams per 10 ml which upon dilution has a pH of 1.9. However, it has been observed that this material will precipitate from phosphate buffer solutions.

Handling

Stability
Light sensitive. Aqueous solutions are stable in solution for up to two weeks at one milligram per milliliter if kept in the dark at 0-5°C.

Storage
Cool and dry protected from light (desiccated at +4 °C in the dark)

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Toxicity

This dye is generally non-toxic to cells; the combination of the dye plus light is also non toxic to cells unless cells have incorporated 5 bromo deoxyuridine.

Ordering Information

Hoechst Dye 33342
(Bisbenzimide)
Cat. No. 382065
Sizes Available: 250 mg
1 gm

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